

23  
End  
circuit 23. Therefore, the detection value corresponding to the phase shift amount at the time when the signal of the frequency corresponding to the cut-off frequency is supplied to the subordinate LPF 21 is detected by the phase difference detecting circuit 23.

Please amend the paragraph appearing at page 20, line 27 – page 21, line 9 as follows:

Art  
In the multiplier 25A used as a reference value generating circuit 25, output is from the output terminals OUT11 and OUT12 in Fig. 9. For example, no signal is inputted to the input terminals IN11 and IN12 and no signal is inputted to the input terminals IN13 and IN14. The multiplier 23A used as a phase difference detecting circuit 23 and the multiplier 25A used as a reference value generating circuit 25 are arranged at the positions where they are matched on the layout and on the temperature change and processes.

#### IN THE CLAIMS

Please amend claims 1 and 7 as follows:

1 (amended). A filter apparatus comprising:

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Cont  
a main filter which has an input terminal and an output terminal and whose characteristics is set by an external control signal;

Sub B1  
a subordinate filter having substantially the same construction as that of said main filter;

a signal generator for generating a signal of a frequency equal to a cut-off frequency of each of said main filter and said subordinate filter and supplying it to said subordinate filter;

a phase difference detector for detecting a phase difference between the signal generated from said signal generator and an output signal of said subordinate filter and outputting a phase difference signal;

AB End  
a reference signal generator for generating a reference signal corresponding to an ideal value of the phase difference detected by said phase difference detector; and

an error detector for detecting an error between said phase difference signal and said reference signal and supplying an error signal as said external control signal to said main filter and said subordinate filter;

whereby a cut off frequency of at least one of said main filter and said subordinate filter is controlled through the value of at least one resistor in said filter and the value of said resistor is set according to an external voltage.

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7(amended). An apparatus according to claim 6, wherein

said compensating means is a multiplier substantially similar to the multiplier

AC Cont.  
constructing said phase difference detector,

a predetermined value is generated by said multiplier constructing said compensating means, and